

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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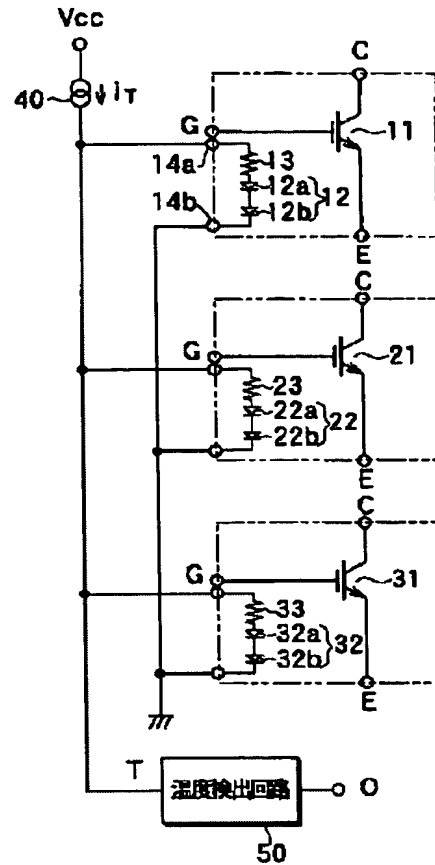
APPLICATION DATE : 01-11-99  
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APPLICANT : DENSO CORP;

INVENTOR : MIURA SHOJI;

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H01L 29/861

TITLE : TEMPERATURE DETECTOR FOR  
SEMICONDUCTOR MODULE



ABSTRACT : PROBLEM TO BE SOLVED: To minimize the error of a detected temperature in the detection of the temperature of a semiconductor module consisting of a plurality of IGBT elements.

SOLUTION: In this detector, temperature detecting diodes 12, 22 and 32 are provided on IGBT elements 11, 21 and 31, respectively, and the diodes 12, 22 and 32 are connected in parallel, a constant current is supplied thereto from a constant current source 40 to detect the temperature of a semiconductor module in a temperature detecting circuit 50. Resistors 13, 23 and 33 are serially connected to the temperature detecting diodes 12, 22, and 32, respectively.

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**(C) WPI/Derwent**

**AN - 2001-077862 [09]**

**AP - JP19990138528 19990519**

**CPY - HOND**

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**PA - (HOND ) HONDA MOTOR CO LTD**

**PN - JP2000328917 A 20001128 DW200109 F01M1/18 008pp**

**PR - JP19990138528 19990519**

**XIC - F01M-001/02 ; F01M-001/18 ; F04B-049/00**

**XP - N2001-059734**

**AB - JP2000328917 NOVELTY - An electronic control unit (U) detects the failure of electrically driven oil pump (OP) based on the integral value of the electric power computed by multiplying the voltage value (Vp) and current values (Ip) of pump. When engine speed and hydraulic pressure (Po) or hydraulic temperature (To) of lubricating oil are in the stable state.**

**- DETAILED DESCRIPTION - Voltmeter (S7) and ammeter (S6) measures the voltage and current values of the oil pump. Engine speed detection unit (S1) detects the engine speed. Pressure gauge (S3) or temperature detection unit (S4) measures the hydraulic pressure or hydraulic temperature of the lubricating oil.**

**- USE - For judging failure of electrically driven oil pump which supplies lubricating oil to engine.**

**- ADVANTAGE - Failure of electrically driven oil pump in the engine is judged reliably by preventing damage to the engine by lubrication beforehand.**

**- DESCRIPTION OF DRAWING(S) - The figure shows the entire structure of lubrication unit of an engine.**

**- Current value Ip**

**- Oil pump OP**

**- Hydraulic pressure Po**

**- Speed detection unit S1**

**- Pressure gauge S3**

**- Temperature detection unit S4**

**- Ammeter S6**

**- Voltmeter S7**

**- Hydraulic temperature To**

**- Control unit U**

**- Voltage value Vp**

**- (Dwg.1/10)**

**IW - FAIL JUDGEMENT APPARATUS ELECTRIC DRIVE OIL PUMP DETECT FAIL BASED POWER INTEGRAL VALUE OBTAIN MULTIPLICATION VOLTAGE CURRENT VALUE PUMP STABILISED ENGINE SPEED HYDRAULIC PRESSURE**

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**NC - 001**

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**PAW - (HOND ) HONDA MOTOR CO LTD**

**TI - Failure judging apparatus of electrically driven oil pump, detects failure based on power integral value obtained by multiplying voltage and current values of pump at stable engine speed and hydraulic pressure**